

# HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION

## **HVAC 100. EPA Clean Air Act: Section 608**

### **1 Credit (1)**

Refrigerant certification preparation to include basics of refrigerant bearing equipment, ozone depletion and the new legislation, technician categories covered and the certification examination.

## **HVAC 101. Fundamentals of Refrigeration**

### **4 Credits (3+2P)**

Refrigeration cycle and the various mechanical components. Use of special tools, equipment, and safety precautions.

## **HVAC 102. Fundamentals of Electricity**

### **4 Credits (3+2P)**

Introduction to electricity theory, OHM's Law, circuits, AC/DC, and practical applications.

## **HVAC 103. Electrical and Mechanical Controls I**

### **4 Credits (3+2P)**

Applications of basic electrical and mechanical controls. Reading and drawing diagrams of simple refrigerating equipment. Safe use of testing equipment.

**Prerequisites:** HVAC 101 and HVAC 102, or consent of instructor.

## **HVAC 110. Professional Development and Leadership**

### **1 Credit (1)**

As members and/or officers of various student professional organizations, students gain experience in leadership, team building, and community service. Students competing in Skills USA are required to register for the course. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: HVAC majors. Graded: S/U Grading (S/U, Audit). Restricted to: Community Colleges only.

## **HVAC 113. Job Shadowing**

### **1 Credit (1)**

Course will expose students to actual HVAC/R field work and provide them knowledge of the expectations of field work as they shadow an HVAC/R technician. Consent of instructor required. Restricted to: Community colleges only.

## **HVAC 205. Commercial Refrigeration Systems**

### **4 Credits (3+2P)**

Service and maintenance of commercial refrigeration equipment to include evacuation and charging procedures, electrical diagrams, and compressors and accessories.

**Prerequisites:** HVAC 103 or consent of instructor.

## **HVAC 207. Residential Air Conditioning Systems**

### **4 Credits (3+2P)**

Applications and types of equipment used in comfort cooling. Preventive maintenance, service, and repairs common to evaporative coolers and refrigerated air conditioning systems. Air properties and psychometrics.

**Prerequisite:** HVAC 103 or consent of instructor.

## **HVAC 209. Residential Heating Systems**

### **4 Credits (3+2P)**

Gas and electric systems used in comfort heating. Maintenance procedures, safety, troubleshooting, and servicing malfunctions in equipment.

**Prerequisite:** HVAC 103 or consent of instructor.

## **HVAC 210. Commercial Air Conditioning and Heating Systems**

### **4 Credits (3+3P)**

Covers troubleshooting mechanical and electrical problems associated with HVAC equipment in commercial buildings. Includes gas, electric, and heat pump systems. Restricted to Community Colleges campuses only.

**Prerequisite(s):** HVAC 103 or consent of instructor.

## **HVAC 211. Heat Pump Systems**

### **4 Credits (3+2P)**

Reverse cycle refrigeration systems utilized in comfort heating and cooling. Troubleshooting mechanical electrical problems associated with heat pumps. HVAC 103 or consent of instructor.

## **HVAC 213. Practicum**

### **3 Credits (3)**

Working in the field with journeymen service technicians. Develop and apply job skills. May be repeated up to 3 credits. Consent of Instructor required. Restricted to: HVAC majors. Restricted to Community Colleges campuses only.

**Prerequisite(s):** HVAC 113 and Consent of instructor.

## **HVAC 220. Introduction to Sheet Metal Fabrication**

### **4 Credits (3+2P)**

Introduction to sheet metal fabrication to include hands-on practical laboratory applications, cutting and forming procedures, identifying types and gauges. Design and layout techniques.

**Prerequisite:** OETS 118 or equivalent math or consent of instructor.

## **HVAC 225. New Mexico Mechanical Codes: HVAC**

### **1-4 Credits**

Principles and regulations developed for HVAC, sheet metal, and plumbing occupations to include terminology, ventilation air supply, exhaust systems, duct systems, combustion air, chimneys and vents, boilers/water heaters, refrigeration, panel and hydronic panel heating, fuel gas piping, storage systems, solar systems, and workmanship standards. May be repeated for a maximum of 12 credits.

## **HVAC 255. Special Topics**

### **1-6 Credits**

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**Prerequisite:** consent of instructor.

## **HVAC 290. Special Problems**

### **1-4 Credits**

Individual studies related to heating, air conditioning, and refrigeration.

**Prerequisites:** HVAC 101, HVAC 102, and consent of instructor.